

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1. (Previously Presented) A method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance, the method comprising continuously extruding a billet of an aluminum alloy comprising, hereinafter, all compositional percentages are by weight, 0.5% to 1.5% of Si, 0.9% to 1.6% of Mg, 1.7% to 2.5% of Cu, while satisfying the following equations (1), (2), (3), and (4),

$$3 \leq \text{Si\%} + \text{Mg\%} + \text{Cu\%} \leq 4 \quad (1)$$

$$\text{Mg\%} \leq 1.7 \times \text{Si\%} \quad (2)$$

$$\text{Mg\%} + \text{Si\%} \leq 2.7 \quad (3)$$

$$\text{Cu\%}/2 \leq \text{Mg\%} \leq (\text{Cu\%}/2) + 0.6 \quad (4)$$

and further comprising 0.5% to 1.2% of Mn, with the balance being Al and unavoidable impurities, into a solid product by using a solid die having a bearing length (L) of 0.5 mm or more and the bearing length (L) and thickness (T) of the solid product to be extruded have a relationship defined by $L \leq 5T$, to obtain the solid product in which a fibrous structure accounts for 60% or more in area-fraction of the cross-sectional structure of the solid product, wherein a flow guide is provided in front of the solid die, an inner circumferential surface of a guide hole of the flow guide being separated from an outer circumferential surface of an orifice which is continuous with the bearing of the solid die at a distance of 9-15 mm, and the thickness of the flow guide being 5% to 25% of the diameter of the billet.

2. (Canceled)

3. (Canceled)

4. (Previously Presented) The method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance according to claim 1, wherein the aluminum alloy further comprises at least one of 0.02% to 0.4% of Cr, 0.03% to 0.2% of Zr, 0.03% to 0.2% of V, and 0.03% to 2.0% of Zn.

5. (Previously Presented) The method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance according to claim 1, the method additionally comprising a homogenization step wherein a billet of the aluminum alloy is homogenized at 450°C or more and cooled at an average cooling rate of 25°C/h or more from the homogenization temperature to at least 250°C, an extrusion step wherein the homogenized billet of the aluminum alloy is extruded at a temperature of 450°C or more, a press quenching step wherein the extruded product is cooled to a temperature of 100°C or less at a cooling rate of 10°C/sec or more in a state in which the surface temperature of the extruded product immediately after the extrusion is maintained at 450°C or more, or a quenching step wherein the extruded product is subjected to a solution heat treatment at a temperature of 450°C or more and cooled to a temperature of 100°C or less at a cooling rate of 10°C/sec or more, and an aging step wherein the quenched product is heated at a temperature of 150°C to 200°C for 2 to 24 hours.

6. (Previously Presented) A method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance, the method comprising the step of:

extruding a billet of an aluminum alloy comprising, in percent by weight, 0.5% to 1.5% of Si, 0.9% to 1.6% of Mg,

1.7% to 2.5% of Cu, while satisfying the following equations (1)-(4),

$$3 \leq \text{Si\%} + \text{Mg\%} + \text{Cu\%} \leq 4 \quad (1)$$

$$\text{Mg\%} \leq 1.7 \times \text{Si\%} \quad (2)$$

$$\text{Mg\%} + \text{Si\%} \leq 2.7 \quad (3)$$

$$\text{Cu\%}/2 \leq \text{Mg\%} \leq (\text{Cu\%}/2) + 0.6 \quad (4)$$

and further comprising 0.5% to 1.2% of Mn, with the balance being Al and unavoidable impurities, into a hollow product by using a porthole die or a bridge die in which the ratio of the flow speed of the aluminum alloy in a non-joining section to the flow speed of the aluminum alloy in a joining section in a chamber, where the billet reunites after entering a port section of the die in divided flows and subsequently encircling a mandrel, is controlled at 1.5 or less, thereby obtaining the hollow product in which a fibrous structure accounts for 60% or more in area-fraction of the cross-sectional structure of the hollow product.

7. (Previously Presented) The method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance according to Claim 1, wherein $L \leq 3T$.

8. (Previously Presented) The method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance according to claim 4, the method additionally comprising a homogenization step wherein a billet of the aluminum alloy is homogenized at 450°C or more and cooled at an average cooling rate of 25°C/h or more from the homogenization temperature to at least 250°C, an extrusion step wherein the homogenized billet of the aluminum alloy is extruded at a temperature of 450°C or more, a press quenching step wherein the extruded product is cooled to a temperature of 100°C or less at a cooling rate of 10°C/sec or more in a state in which the surface temperature of the extruded product immediately after

the extrusion is maintained at 450°C or more, or a quenching step wherein the extruded product is subjected to a solution heat treatment at a temperature of 450°C or more and cooled to a temperature of 100°C or less at a cooling rate of 10°C/sec or more, and an aging step wherein the quenched product is heated at a temperature of 150°C to 200°C for 2 to 24 hours.

9. (Previously Presented) The method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance according to claim 6, wherein the aluminum alloy further comprises at least one of 0.02% to 0.4% of Cr, 0.03% to 0.2% of Zr, 0.03% to 0.2% of V, and 0.03% to 2.0% of Zn.

10. (Previously Presented) The method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance according to claim 6, the method additionally comprising a homogenization step wherein a billet of the aluminum alloy is homogenized at 450°C or more and cooled at an average cooling rate of 25°C/h or more from the homogenization temperature to at least 250°C, an extrusion step wherein the homogenized billet of the aluminum alloy is extruded at a temperature of 450°C or more, a press quenching step wherein the extruded product is cooled to a temperature of 100°C or less at a cooling rate of 10°C/sec or more in a state in which the surface temperature of the extruded product immediately after the extrusion is maintained at 450°C or more, or a quenching step wherein the extruded product is subjected to a solution heat treatment at a temperature of 450°C or more and cooled to a temperature of 100°C or less at a cooling rate of 10°C/sec or more, and an aging step wherein the quenched product is heated at a temperature of 150°C to 200°C for 2 to 24 hours.

11. (Previously Presented) The method of manufacturing a high-strength aluminum alloy extruded product excelling in

corrosion resistance and stress corrosion cracking resistance according to claim 1, wherein the aluminum alloy consists of Al, 0.05-1.5% of Si, 0.9-1.6% of Mg, 1.7-2.5% of Cu, 0.5-1.2% of Mn and, optionally, 0.02-0.4% Cr, 0.03-0.2% Zr, 0.03-0.2% V and 0.03-2.0% Zn.

12. (Previously Presented) The method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance according to claim 6, wherein the aluminum alloy consists of Al, 0.05-1.5% of Si, 0.9-1.6% of Mg, 1.7-2.5% of Cu, 0.5-1.2% of Mn and, optionally, 0.02-0.4% Cr, 0.03-0.2% Zr, 0.03-0.2% V and 0.03-2.0% Zn.

13. (New) The method of manufacturing a high-strength aluminum alloy extruded product excelling in corrosion resistance and stress corrosion cracking resistance according to claim 9, the method additionally comprising a homogenization step wherein a billet of the aluminum alloy is homogenized at 450°C or more and cooled at an average cooling rate of 25°C/h or more from the homogenization temperature to at least 250°C, an extrusion step wherein the homogenized billet of the aluminum alloy is extruded at a temperature of 450°C or more, a press quenching step wherein the extruded product is cooled to a temperature of 100°C or less at a cooling rate of 10°C/sec or more in a state in which the surface temperature of the extruded product immediately after the extrusion is maintained at 450°C or more, or a quenching step wherein the extruded product is subjected to a solution heat treatment at a temperature of 450°C or more and cooled to a temperature of 100°C or less at a cooling rate of 10°C/sec or more, and an aging step wherein the quenched product is heated at a temperature of 150°C to 200°C for 2 to 24 hours.